

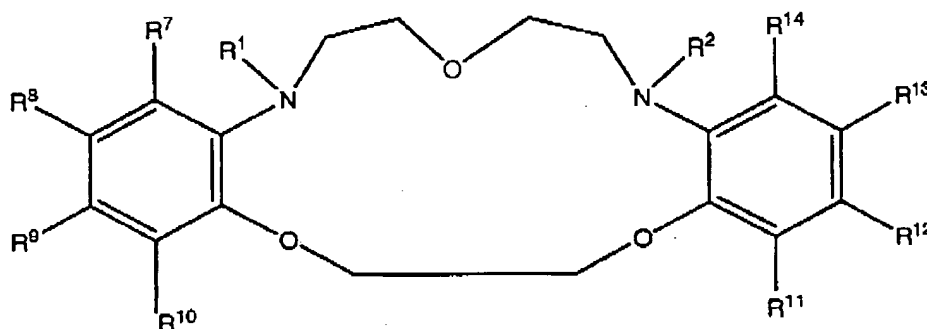
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Serial No. 10/026,302

Docket No. MP0070

### REMARKS

#### The Claimed Invention

The present invention is directed to derivatives of crown ether compounds that are required to comprise a dye, a reactive group or a conjugated substance. These crown ether compounds have the following general structure:



wherein the substituents are as defined in the claims. The present crown ether compounds bind sodium, calcium and potassium ions under physiological conditions and when attached to a fluorophore are fluorogenic ion indicators. Thus, these crown ether compounds find particular use as indicators of the metal ions wherein they demonstrate a change in fluorescent signal when bound to ions such as sodium.

#### The Pending Claims

Prior to consideration of the following Response to Office Action, Claims 1, 3, 5-10, 12, 14-21, 25-32 and 34-55 are pending. Claims 1, 3, 5-10, 12, 14-20 and 52-54 are directed to the present crown ether compounds comprising at least one -L-DYE, -L-Rx or -L-Sc. Claims 21, 25-32, 34-43 and 55 are directed to the present crown ether compounds wherein the compounds comprise at least one -L-DYE. Claims 44-50 are directed to a method for detecting target metal ions in a sample using the present crown

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ether compounds. Claim 51 is directed to a kit for detecting or quantitating target metal ions.

The Office Action

Claims 3, 5, 7, 10, 14, 16-20, 25-32, 34, 35, 41 and 51-55 are withdrawn from consideration.

Claims 1, 4, 6, 8, 9, 12, 15, 21, 36-40 and 42-50 stand rejected under 35 U.S.C. 112, 2<sup>nd</sup> Paragraph.

Amendments

Claims 26-32, 34-36, 40, and 44 have been amended.

Claims 1-25 have been canceled. New Claims 56-82 have been added that only embrace the elected core structure.

Claims 26-32 and 34-36 have been amended to depend from Claim 79. Newly added Claim 79 is a composition of matter that comprises the elected core structure and a metal ion. Support can be found on page 40, lines 25-26.

Claim 33 has been canceled.

Claim 40 has been amended to clarify the limitation of Claim 40.

Claim 44 has been amended to embrace the elected core structure.

Claims 52-55 have been canceled.

New Claims 56-82 have been added, support can be found in the claims as filed and throughout the specification.

Applicants believe that no new matter has been added by any of these amendments and the Examiner is respectfully requested to enter them.

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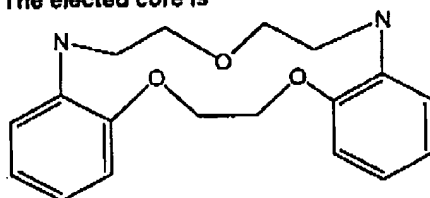
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### RESPONSE TO THE RESTRICTION REQUIREMENT

In the response that follows, the Examiner's Election/Restriction of the Applicant's claimed invention is provided in full text, as identified by indented small bold print, followed by the Applicants response.

Applicant's election with traverse of group I in the reply filed on 7/14/04 is acknowledged. The traversal is on the ground that the inventions of group I and II are not distinct or independent because the compounds are not made or used independently. This is not found persuasive because compounds embraced by claim 1 are indeed patentably distinct, raise different issues of patentability and are extremely burdensome for the office to search and examine.

The elected core is



The search of each such core has to be done which is not possible without serious burden. The above four structures signify a tiny subset of what is embraced by claim 1 which does not include further ring fusions. There are thousands of different cores present in the instant claims and these compounds further contain sugars, proteins, nucleic acids, polymers, cells, viruses, etc. which are classified separately and examined by different groups at the USPTO.

Compounds, corresponding compositions, a method of use and a process of making that are of the same scope are considered to form a single inventive concept. The compounds instantly claimed are not so linked as to form a single inventive concept. The compounds are so diverse in scope that a prior art anticipating one compound under 35 USC 102 would not render obvious another compound of the same claim under 35 USC 103. This is evidentiary of patentably distinct and independent inventions.

The requirement is still deemed proper and is therefore made FINAL.

Claims 3, 5, 7, 10, 14, 16-20, 25-32, 34, 35, 41, 51 and 52-55 along with subject matter not falling under elected group I of the remaining claims are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 7/14/04.

Applicants have canceled compound claims 1-20 and 42-43 and have added new claims 56-78 that embrace only the elected core structure. Composition claims 21-25 have been canceled and new claims 79-81 have been added that embrace only the

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elected core structure and an associated metal ion. The method (44-50 and 82) and kit (51) claims have been canceled and/or amended to only embrace the core structure.

Applicants believe, based on the Examiners grouping of the original claims, that the currently amended and newly added claims embrace the elected core, and not the subject matter which the Examiner has withdrawn.

Applicants respectfully request that the Examiner examine the current pending claims, in their entirety, as a single invention.

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### RESPONSE TO THE REJECTIONS

In the response that follows, the Examiner's Rejections of the Applicant's claimed invention is provided in full text, as identified by indented small bold print, followed by the Applicants response.

**Claims 1, 4, 6, 8, 9, 12, 15, 21, 36-40 and 42-50 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

Applicants have canceled claims 1,4,6,8,9,12, 15, 21, and 42-43 and added new claims 56-82. This rejection is respectfully traversed because the terms "Rx" and "conjugated substance" of Sc are properly defined in the specification. However, the Applicants have also amended the independent claims to specify specific Rx groups and conjugated substance R groups.

- i) **The groups at Rx are written as compounds and not radicals. Compounds do not have points of attachments. See for example, ester or anhydride. These are classes of compounds. Applicant's intention may be alkoxycarbonyl for ester, but this is not reflected in the claims.**

Applicants have amended, or included if new, the independent claims to include specific Rx groups. This language was in Claim 1 as filed. Applicants respectfully assert that the Rx groups are like any other R group, chemical moieties that may be attached to the core structure at the sites specified by the R groups. The R groups specifically claimed in the independent claims can be attached to the core structure at any of the specified R groups in the claims.

Applicants respectfully request that the Examiner withdraw this 35 U.S.C 112, second paragraph rejection.

- ii) **Regarding Sc as a "conjugated substance," Applicants response appears to state that a conjugated substance is what is being formed. This definition does not say what Sc is, rather what the compound as a whole is. The variable Sc is still not defined.**

Applicants previous remarks were not meant to indicate that the conjugated substance is what is being formed but rather that these moieties are like any other R

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group. They may be attached to the core structure at the sites specified by the corresponding R groups. These conjugated substance moieties are broadly defined in the specification to be organic or inorganic moieties with many preferred embodiments specifically stating the conjugated substance moieties. For example, page 30 line 23 to page 31 line 31 list many conjugated substances such as proteins, peptides and nucleic acid polymers.

In an effort further overcome this rejection the applicants have amended the independent claims in to include the conjugated substance moieties that were in original Claim 13 as filed.

Applicants respectfully request that the Examiner withdraw this rejection.

- iii) **Claim 21 is improperly presented as a composition claim. A composition requires the presence of at least two components (see also claims 36-40). Claim 21 is a duplicate of claim 1.**

Applicants have canceled claim 21 and rewritten as new claim 79, wherein the composition comprises a present compound and metal ion. Support can be found on page 40 lines 25-26 and throughout the specification.

Applicants believe, based on the comments from the Examiner, that these new claims should be free from the above rejection. Thus, the Examiner is respectfully requested to withdraw this rejection and enter the new claims.

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### CONCLUSION

In light of the above remarks and amendments, reconsideration and withdrawal of the outstanding rejections are respectfully requested. All amendments are made in a good faith effort to advance the prosecution on the merits. Applicant respectfully submits that no amendments have been made to the pending claims for the purpose of overcoming any prior art rejections that would restrict the literal scope of the claims or equivalents thereof. Applicant reserves the right to subsequently take up prosecution of the claims originally filed in this application in continuation, continuation-in-part, and/or divisional applications.

It is submitted that this application is now ready for allowance. Early notice to this effect is solicited. If, in the opinion of the Examiner, a telephone conference would expedite the prosecution of the subject application, the Examiner is invited to call the undersigned at (541) 335-0203.

Respectfully submitted,

Date: March 3, 2005

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